Operational Recovery Service Offering

Description and Guide

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This Guide is available on the DTS web site at www.dts.ca.gov

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Explanation of the Service Offering

Introduction

Information technology is so integral to modern government that if a flood, fire, or earthquake destroys a state facility the resulting loss of public services can quickly escalate into a second disaster with even wider consequences.

Recognizing this risk, DTS has developed a service to restore customers' critical IT applications quickly after a disaster. This service is called the Operational Recovery Service Offering,

This solution employs a hotsite that supports both mainframe and server-based applications. Hotsites provide the capability for DTS to restore subscribers' applications to an out-of-state data center within 72 hours of a DTS-declared disaster.

Because testing is vital to every OR program DTS schedules two full scale exercises each year.

DTS Customers who subscribe to the Service are charged a monthly fee that is based on the size of the covered system.

At a Glance

Service Offering Name: Operational Recovery Service.

Purpose: If a DTS facility is put out of action DTS will restore customer applications within 72 hours at an out-of-state site.

Methodology: A hotsite – a commercial IT facility specializing in connecting and configuring hardware to DTS specifications on short notice.

Best candidates: Truly mission-critical systems that can tolerate up to 72 hours of downtime.

Cost: Monthly fees vary with the size and complexity of the protected systems. There are additional charges for actual recoveries in a disaster situation.

Considerations: Thorough planning and testing are required. Good change control is a plus.

Benefits of DTS OR Service

DTS has designed the Service to provide customers with the following benefits:

Protection from extended IT outages caused by natural or man-made disasters

If a flood, fire, explosion, or other incident affects a subscribers' system it will be restored within 72 hours of a declared disaster as opposed to weeks or months that it may take to restore non-protected systems and applications.

Professional consultation

The Business Continuity staff are experienced in preparing customers' critical applications for the hotsite, and they support customers with consultation and guidance in every phase of the project.

Regular operational recovery testing

Regular exercises help subscribers keep their recovery procedures up-to-date despite constant changes in software, hardware, and personnel. DTS arranges full scale Operational Recovery Exercises up to twice a year. They are thorough and realistic. Applications and data are shipped to the hotsite and actually restored there, just as they would be in a real disaster. Although participation is optional, most subscribers take advantage of them so they can be sure their OR plans really work in a disaster.

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Specialized Service Desk

During tests a special OR-only Remedy service desk is available to customers. This gives exercise-related problems a fast track and ensures that post-exercise reviews capture every issue.

What's a Hotsite?

Hotsites are special IT facilities built to take over the workloads of damaged computer centers. Hotsites keep a wide variety of hardware on hand and are specialists in connecting it into almost any configuration on short notice. They are strategically located around the country. DTS' primary hotsite is located in Colorado, with alternate hotsites in New York and Maryland.

The hotsite works this way. Upon DTS' declaring a disaster the hotsite vendor would begin configuring computer equipment to simulate DTS' own data center. For communications back to Sacramento they would set up a virtual private network (VPN) link. Meanwhile, DTS' offsite storage vendor would ship backup tapes to the hotsite. Service subscribers' applications and data would be ready for production on the hotsite system within 72 hours after the disaster was declared.

Service Highlights

All DTS customers are protected against minor threats such as temporary power outages, media damage, etc. However, the Service offers a higher level of security meant for times when a DTS facility was heavily damaged or even destroyed.

Recovering applications within 72 hours requires practice and coordination. DTS encourages subscribers to take part in the semi-annual DTS OR exercises. The exercises are very thorough, taking several weeks to do preparation, testing, and follow-up. This rigor ensures that OR staff are well-rehearsed; that the latest hardware and software changes are included in the configuration; and that the plans will be truly workable in a real disaster.

DTS charges subscribers a monthly fee that includes recovery at the hotsite, weekly OR backups, offsite storage and recovery testing twice a year.

It takes two to four months to bring a subscriber on board. From the start of the project DTS will provide the customer with consultation and guidance. This includes:

Consultation on recovery requirements and processes

The DTS OR Team works with potential hotsite subscribers to define what components of the main application, supporting applications, hardware and network need to be duplicated at the hotsite. Once these are defined DTS will help the customer create recovery processes and procedures.

Coordinating with the hotsite vendor

The DTS OR Coordinator works directly with a project manager appointed by the vendor to make sure both sides clearly understand the customer's needs.

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Roles, Responsibilities, and First Steps

Successful OR planning depends on a three-way partnership where technical staff from customer departments define their OR requirements, the DTS technical staff designs and implements solutions, and the DTS Business Continuity staff facilitates and provide expertise in best practices for operational recovery.

Here are the most prominent roles and responsibilities in planning recovery services.

Roles and Responsibilities	Customer	DTS
1. Discuss needs and concerns with a DTS Customer Representative. On deciding to move forward, fill out a New Subscriber Worksheet.	☑	
2. In discussions with DTS Business Continuity and Customer Service, clarify requirements and priorities (see Customer Startup Checklist below)	☑	☑
3. Prepare a Service Request and submit it to DTS	☑	
4. Identify project manager	☑	
5. Identify project staff	☑	
6. Identify the DTS project leader		☑
7. Identify the DTS project staff		☑
8. Provide a preliminary first estimate of costs		☑
9. Prepare kickoff documentation (such as project charter)	☑	☑
10. Arrange technical discussions between customer's and DTS' staffs	☑	☑
11. Provide a list of critical files needed for recovery	☑	
12. Develop a list of hardware requirements		☑
13. Develop a list of applications and utilities requirements		☑
14. Identify network requirements	☑	☑
15. Confirm recovery architecture: Hardware, software, network, and data	☑	☑
16. Develop configuration diagrams for recovery site hardware (if applicable)	☑	☑
17. Provide revised cost estimates		☑
18. Obtain go/no-go decision from customer's management	☑	
19. Obtain control agency approvals (typically through FSRs, SPRs, BCPs)	☑	☑
20. Update customer's day-to-day operational guidelines and procedures	☑	
21. Provide a contact number for routine inquiries and problems	☑	☑
22. Prearrange a 24x7 contact numbers for use in disasters	☑	☑
23. Update disaster recovery procedures & scripts	☑	☑
24. Modify DTS' backup processes to accommodate OR requirements		☑

25. Update DTS' day-to-day operational guidelines and procedures		☑
26. Create contract with recovery vendor and add contract amendments		☑
27. Plan an on site recovery exercise	☑	☑
28. Set a date for the on-site recovery test	☑	☑
29. Conduct the on-site recovery test	☑	☑
30. Review the on-site recovery test	☑	☑
31. Plan first remote recovery test	☑	☑
32. Set a date for the first remote recovery test	☑	☑
33. Conduct the first remote recovery test	☑	☑
34. Review the first remote recovery test	☑	☑
35. Perform project close-out tasks	☑	☑

Customer Startup Checklist

To get discussions started the customer should be prepared to provide the following information. The New Subscriber Worksheet is a good place to begin.

	Startup Task	Customer	DTS help
1.	A list of specific applications to be recovered	☑	
2.	A preliminary estimate of the maximum allowable downtime	☑	
3.	The platform on which the applications run	☑	
4.	Server or mainframe capacities (DTS can help with this)	☑	☑
5.	The priority order in which the applications should be recovered	☑	
6.	The speed with which each application must be recovered	☑	☑
7.	Each application's tolerance for out-of-date data	☑	☑
8.	The databases the applications require, if any.	☑	☑
9.	The network configuration needed to support the application	☑	☑
10.	The application's ancillary components (e.g. TP monitors, JCL files)	☑	☑

Customer Administration Duties

Role	Customer Administrative Duty
Customer's Executive Mgt	▪ Obtain project funding. ▪ Seek control agency approval for the solution
Customer's Executive Sponsors	▪ Champion the project ▪ Allocate resources
Customer's Project Sponsors	▪ Establish the project scope ▪ Provide oversight and guidance to the project team. ▪ Ensure issues are addressed and resolved in a timely manner ▪ Remove obstacles

Role	Customer Administrative Duty
Customer's Project Managers	▪ Provide IT Project Management. ▪ Develop and maintain a project work plan. ▪ Develop and maintain a project schedule. ▪ Provide measurable recovery objectives (RTO, RPO, etc) ▪ Chair meetings. ▪ Coordinate with Project Management Team to provide Steering Committee with project status reports. ▪ Draft and maintain Project Charter. ▪ Maintain and update the Issue Tracking Log.
Customer's representatives (ongoing tasks after project's conclusion)	▪ Act as key contact for questions, concerns and advisories. ▪ Keep DTS advised of changes in hardware, software, network, or other resources so that DTS can communicate these to the vendor. ▪ Marshal customer's staff for periodic recovery tests (including preparation and post-test analysis).

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Security

Operations and Systems Security

DTS implements several security measures during and after each test:

- An encrypted VPN (virtual private network) is used to connect to the hotsite.
- DTS insists that employees of the offsite storage facility are bonded.
- After exercises and recoveries, the vendor erases all DTS data from DASD and similar storage devices at the hotsite.
- Tape media used during an exercise are available for 30 days after the exercise. Once that time expires, all tape media is erased (degaussed) within 5 days by DTS staff.
- Frequent review of established DTS security guidelines, especially application-specific considerations.
- Ensure production system security is replicated during testing and recovery.
- Ensure that regulatory protections such as HIPAA are maintained in the test and recovery environments.

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Getting Help and Information

During Normal Operations

Customers with questions or concerns may contact their DTS Customer Representatives.

During an Exercise

DTS' OR Coordinator will provide:

- Contact numbers for the appropriate DTS OR contacts and OR Service Desk.
- Instructions for using DTS' OR-specific Remedy help desk system.

During a Disaster

During a disaster or imminent threat, the DTS OR staff will contact hotsite subscribers through the channels established in the DTS Operational Recovery Plan.

Following the declaration of a disaster, Customers should contact for additional information or to report problems:

- The prearranged 24x7 contact numbers provided during Service implementation
- DTS' web based OR-specific Remedy help desk system
- The DTS OR help desk at (916) 454-8012 or 454-8013

However, in a disaster normal communications may be knocked out. If so,

Escalation Process

Unresolved problems related to the Service should be escalated to:

1. Jack Sturges, Business Continuity Manager (916) 464-3129
2. Alan Criswell DPM III, Operations Manager (916) 464-3697

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Service Offering Objectives

The service offering describes, among other things, the objectives the Service aims to fulfill. The service offering envisions DTS and the customer working together to:

Determine if the Service Fits

Deciding whether an application is a good candidate for the Service is one of the first jobs in OR planning, one which sets the course of the entire project. The DTS business continuity team will work with the customer to clarify their requirements and to determine if the Service will meet their needs.

There are three parameters that help determine if the Service is a good fit. The customer should be prepared to discuss these:

Backup Contents: Knowing exactly what to back up is essential. If the customer plans to restore a subset of an application (a common way to reduce complexity and cost) then DTS will need to create a unique backup set, and careful analysis will be needed to identify exactly what files, programs, and data must be copied to tape. DTS offers a tool called BRM that customers can use to identify all their critical files. DTS will help the customer get started with BRM.

Tolerance for Downtime: The time in which an application must be restored before it dramatically impacts the customer‘s business is called the Recovery Time Objective or RTO. It is measured in hours or days. The Service is designed for applications that can tolerate an RTO of 72 hours.

Data Timeliness: Backup tapes will not contain transactions performed between the most recent backup and the moment of the disaster. How out-of-date data can be while still being usable is called the Recovery Point Objective or RPO. It is typically measured in hours or days and is determined by the customer. RPO is a key element in determining appropriate backup schedules.

Assist the Customer in Preparing for Recovery

Once its clear that the Service meets the customer’s needs, DTS staff works with the customer to determine exactly what programs and data need to be covered. DTS also scrutinizes the system’s environment (hardware, network, etc) to decide how it can best be replicated at the hotsite.

Promote Problem Resolution and Process Improvement

Effective OR programs include regular testing. DTS exercises its OR plans twice a year.

These exercises are lengthy and thorough. Weeks of internal DTS planning culminate in several days of testing and follow-up. During this time it is anticipated that DTS and

customer staff will work together to identify, assign, document and resolve problems encountered during the exercises.

Provide Operational Recovery

This is the centerpiece of the Service. DTS commits to restoring all subscribers' applications at the hotsite within 72 hours after declaring a disaster.

Items not Covered

The Service is offered only to customer systems that are running at a DTS site and that have been formally subscribed. The Service does not include:

- Systems that are not subscribers to the Service.
- Help in developing the customer's internal business resumption plans. Customers are responsible for planning their own:
    - Manual workarounds for un-recovered computer systems
    - Staffing to carry out the recovery
    - Notifications of employees, customers and vendors
- Plans to mitigate damage to the customers' own premises.
- Computer equipment from DTS' inventory if the customer's own equipment is damaged in a disaster.
- Technical staff from DTS' organization if the customer's own staff is insufficient in a disaster.
- Guarantees that customers will recover successfully if they neglect the semi-annual OR tests, fail to subscribe new mission-critical applications, or otherwise do not wholeheartedly take advantage of the Service.

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Reporting Requirements

DTS provides subscribers with reports at the following intervals.

Monthly

OR Service Bill: Shows the amount the customer owes DTS for OR services. The amounts are calculated from disk usage, processor usage and the number of customer-created tapes.

After Each Exercise

Tape Shipping Report: A count of tapes that were shipped to the hotsite prior to the semi-annual test. This report applies to customer-created tapes only, not the tapes that DTS generates in the normal course of backing up the customer's application.

Remedy Help Desk Ticket Report: A complete list of all tickets opened by the customer. These reports are used for problem resolution and process improvement.

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Pricing

Mainframe

Operational Recovery Service Offering fees for mainframes are based on disk space, processor requirements and any customer created tapes sent offsite.

There are additional fees for using the recovery site in an actual disaster which include;

- An initial hotsite recovery fee
- A daily hotsite usage fee

Pricing
As of May 2006

Mainframe Applications

Each MB of DASD (monthly)	$.07
Each MIPS (monthly)	$104
Each customer-created tape	$3

Midrange Applications

Hotsite vendor's charges plus a 4.48% DTS administrative fee

DTS will give the customer a cost quote once the customer, DTS and the vendor all agree on what hardware and/or services will be provided at the hotsite.

Mid-Range

DTS' mid-range service offering charges comprise the vendor's hotsite fees and an additional 4.48% overhead DTS administration fee. The vendor's fee is based on the hardware replicated at the hotsite.

There are examples of fees and a cost worksheet in the Appendices.

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Termination

Service subscribers may cancel their subscriptions at any time by submitting a service request to DTS identifying the date service is to end.

Appendix A – Service Level Agreements

DTS provides the following measurable benefits as part of the Service:

SLA #	End-To-End Service	Component Service	Category	Availability	Service Level	Service Provider/Service Subscriber Responsibilities	Assumptions	Measurement Formula and Example	Measure Interval/Reporting Period	Data Sources
OR Service Level Agreement 1	N/A	N/A	Exercises	Semi-Annually	Semi-Annually	**Service Provider:** Schedule two exercises a year. **Service Subscriber:** Provide staffing for each exercise. Test applications and data once they're installed at the hotsite.	None	Two exercises yearly are included in the service offering.	Semi-Annually	None
OR Service Level Agreement 2	N/A	N/A	Recoveries	Declared disaster	Declared disaster	**Service Provider:** Recover the customer's systems within 72 hours of declaring a disaster.	None	The 72 hour recovery period starts when DTS issues a disaster declaration.	None	None

Appendix B: Service Level Objectives

To provide operational recovery services in a predictable time frame DTS and the customer agree to the following time-based objectives.

Naming Project Teams

DTS will name a project team within one week after the Business Continuity unit receives the customer's service request.

Preparing Initial Assessment

DTS will interview the customer's key contacts and complete a New Subscriber Worksheet within two weeks after the Business Continuity unit receives the customer's service request.

Preparing an Initial, Preliminary Cost Estimate

DTS will provide a first-cut cost estimate based on MIPS and DASD within one week of the Initial Assessment.

Prepare Kickoff Documentation

The DTS project team will be prepared to start work with the customer on any required project kickoff documentation (such as a project charter) within one week of the customers acceptance of the Initial Cost Estimate.

Schedule Technical Staff Meetings

Within one week after the customer's technical staff is named, DTS and the customer will arrange a date for the first meeting between the two technical staffs.

List Technical Requirements

DTS will prepare a list of technical requirements for the hotsite vendor within one month after the first DTS-Customer joint technical team meeting. The list will include

- Names of required applications and utilities
- Hardware requirements
- Network requirements
- Configuration diagrams (if appropriate)

Updated Cost Estimates

DTS will obtain costs from the recovery vendor and prepare firm cost estimates for the customer within two weeks after the technical requirements have been identified.

Control Agency Approval

The customer will prepare and submit documents soliciting control agency approval within one month after receiving the firm cost estimates from DTS.

Plan for Backups

Within one month after the customer approves the firm cost estimates, DTS will prepare a plan for doing operational recovery backups for the customer's applications.

Prepare OR Contract Amendments

DTS will prepare amendments to its contract with the OR vendor within one month after the customer has obtained control agency approval.

Add the Application into Regular OR Test Schedule

DTS will include the customer's application in the semi-annual OR test schedule within six months of adding the customer to the contract with the OR (hotsite) vendor.

Appendix C: New Subscriber Worksheet

After discussing the Operational Recovery Service Offering with a DTS customer representative, customers should fill out this worksheet. Customer Relations will forward it to the DTS Business Continuity Branch as a starting point for more detailed discussions.

Date:

Contact Information

1. Customer department or organization:

2. Customer contact name and phone:

3. DTS contact name and phone:

Applications

4. Customer's name for the application:

5. Platform (Mainframe, midrange, etc)

6. Windows and/or web-based system? (Yes/No)

7. Names of database systems used

8. Network type (Novell, Windows, etc)

9. Other systems on which this application is dependent:

Consequences of not recovering

10. Describe the consequences of a failure to restore the application:

11. Do consequences of the application's failure include:

- ☐ Increased risk to health or safety?
- ☐ Risks to citizens' or employees employment or income?
- ☐ Loss of revenue? (How much? $____ per _____ (Example: $23K per day)
- ☐ Liability risks?
- ☐ Inability to meet legal or regulatory requirements?
- ☐ Risk to public reputation or loss of public confidence?

12. How much downtime for this system can the organization tolerate?

13. How far out of date can the data be without serious consequences?

Appendix D: Sample Monthly Fees

The following examples show what DTS might charge for several kinds of systems.

Mainframe Systems

- For a small system requiring 30 GB of disk storage and 20 MIPS of processor utilization DTS would charge about $4200 per month.
- For a somewhat larger system that requires 100 GB of storage and 30 MIPS of processor utilization, DTS would charge approximately $10,300 per month.
- For a very large system that required 300 GB of disk and utilized 90 processor MIPS, DTS would charge approximately $31,000 per month
- Customers can also produce their own backup tapes These "customer-created-tapes" can be used for any purpose. DTS charges $3.00 for each physical tape thus created.

Midrange (Server) Systems

SunFire 4800
4 900-MHz cpu, 4 GB memory including two 18 GB internal disks for the OS.
Client disk storage: 260GB (in addition to the above OS disks)
Note: SCSI attached StorEdge D-1000 storage box.
Tape units: two SCSI attached DLT 8000

SunFire 880
4 900-MHz cpu, 8 GB memory, two 72 GB internal disks for the OS
Client disk storage: 80GB (in addition to the above OS disks)
Tape units: one SCSI attached DLT 8000

Monthly Cost Estimate: $2,500 + 4.48% (includes one 48-hour exercise per year)

Costs Worksheet

This worksheet calculates what a mainframe customer would pay for covering a system

Description	Qty		Cost/ month		Monthly total
Disk space (GB[1])		x	$71.68	=	
Processor utilization (MIPS)		x	$104	=	
Customer created tapes (each)		x	$3	=	
				Total	

[1] In actual billing, DTS charges in increments of one megabyte at a rate of .07 each.

Appendix E: DTS Provisions for Operational Recovery

This chart compares OR provisions DTS offers all customers versus provisions for Operational Recovery Service subscribers..

	All DTS customers	Service subscribers
Backup electrical generators	Yes	Yes
Uninterruptible power supplies (UPS)	Yes	Yes
Controlled access facility	Yes	Yes
Fire suppressions systems	Yes	Yes
Full backups of applications and data	Bi-weekly	Weekly
Incremental backups	Daily (opt.)	Daily (opt.)
Onsite tape retention	14 days	1 day
Offsite tape retention	21 days	30 days
Customer can create own backup tapes	Yes	Yes
Recovery at hotsite	No	Yes
Recovery time guarantee	None	72 hours
OR exercises	None	Two per year